

## **CLAIM LISTING**

1. (Currently Amended) A monitoring system employed within a network comprising:
  - a file including semantics and directives to generate a monitor tree for a **Java monitoring architecture (JMA)** monitoring system compatible with Java management extensions (JMX), wherein the file is retrieved from a database by a monitor service **that interfaces a visual administrator to managed bean servers of the monitoring system**,
    - where the semantics and directives define a hierarchical architecture of a plurality of resources of a cluster of application servers spanning multiple Java virtual machines (JVMs),
    - the semantics defining information about the monitor tree, monitor managed beans, and resources to be monitored, and
    - the directives defining how the semantics are to be implemented to form the monitor tree,
  - wherein the cluster of application servers includes multiple application server instances and a central services instance that provides communication and synchronization among the multiple application server instances;
  - the monitor tree generated based, at least in part, on the semantics and the directives of the file to monitor the plurality of resources, wherein the monitor tree includes a hierarchical grouping of a plurality of nodes, each of the plurality of nodes having
    - a monitor managed bean and a resource of the plurality of resources associated with the monitor managed bean and
    - a runtime **managed** bean associated with the resource that **interfaces continuously monitors the resource and sends information about** the resource **with to** the monitor managed bean,
  - wherein each node provides an individual report of the resource associated with the monitor managed bean of the node, where the monitor tree enables distributed monitoring of the resources without requiring all monitoring data to be reported to a central location **of the JMA**; and
  - a visual administrator module to provide a graphical user interface to the monitoring system **via the monitor service**, the visual administrator providing access to **the monitor beans**

**to access** monitoring information of each resource without requiring all monitoring data to be reported to a central location.

2. **(Canceled)**

3. **(Currently Amended)** The system of ~~claim 2~~ **claim 1**, wherein the visual administrator module comprises:

a convenience interface to obtain information from the monitor service; and

a graphical user interface to provide a graphical representation of the monitor tree based, at least in part, on the information obtained by the convenience interface.

4. **(Original)** The system of claim 3, wherein the graphical user interface is to provide a window pane to display, at least a portion of, the graphical representation of the monitor tree.

5. **(Original)** The system of claim 4, wherein the graphical user interface is to further provide a second window pane to display a list of one or more properties for at least one of the plurality of nodes of the monitor tree.

6. **(Original)** The system of claim 5, wherein the list of one or more properties includes one or more key-value pairs, each key-value pair having a key to identify a listed property and a corresponding value to specify a current value of the identified property.

7. **(Currently Amended)** The system of claim 4, wherein the graphical user interface is to select one of the plurality of nodes of the graphical representation of the monitor tree, ~~the selected node having a monitor managed bean.~~

8. **(Original)** The system of claim 7, wherein the graphical user interface is to further provide a second window pane having an attribute tab and an operation tab.

9. **(Original)** The system of claim 8, wherein the second window pane is to display a list of one or more attributes of the monitor managed bean, if the attribute tab is selected.

10. (Original) The system of claim 9, wherein at least one of the listed attributes includes a value field specifying a current value of the listed attribute.

11. (Original) The system of claim 8, wherein the second window pane is to display a list of one or more operations of the monitor managed bean, if the operation tab is selected.

12. (Original) The system of claim 11, wherein the second pane is to display an invoke button to selectively invoke one or more of the listed operations of the monitor managed bean.

13. **(Currently Amended)** A computer-implemented method employed within a network comprising:

accessing a file in a database, the file having semantics and directives to generate a monitor tree for a **Java monitoring architecture (JMA)** monitoring system compatible with Java management extensions (JMX) to individually monitor a plurality of resources within the network,

where the semantics and directives define a hierarchical architecture of the plurality of resources of a cluster of application servers spanning multiple Java virtual machines (JVMs),

the semantics defining information about the monitor tree, monitor managed beans, and resources to be monitored, and

the directives defining how the semantics are to be implemented to form the monitor tree,

wherein the cluster of application servers includes multiple application server instances and a central services instance that provides communication and synchronization among the multiple application server instances;

generating the monitor tree based, at least in part, on the semantics and the directives of the file, the monitor tree to monitor the plurality of resources, wherein the monitor tree includes a hierarchical grouping of a plurality of nodes, each of the plurality of nodes having

a monitor managed bean and a resource of the plurality of resources associated with the monitor managed bean and

a runtime managed bean associated with the resource that interfaces continuously monitors the resource and sends information about the resource with to the monitor managed bean,

wherein each node provides an individual report of the resource associated with the monitor managed bean of the node, where the monitor tree enables distributed monitoring of the resources without requiring all monitoring data to be reported to a central location of the JMA; and

displaying, at least a portion of, the generated monitor tree on a graphical user interface of a visual administrator via a monitor service that interfaces a visual administrator to managed bean servers of the monitoring system, wherein the displayed portion of the generated monitor tree includes the plurality of nodes, each of the plurality of nodes having a monitor managed bean and a resource of the plurality of resources associated with the monitor managed bean, including providing access through the graphical user interface to the monitor beans to access monitoring information of each resource without requiring all monitoring data to be reported to a central location.

**14.** (Original) The method of claim 13, wherein displaying, at least a portion of the generated monitor tree on the graphical user interface of the visual administrator comprises:

displaying the portion of the generated monitor tree in a first window pane of the graphical user interface.

**15. (Cancelled)**

**16. (Currently Amended)** The method of claim 15 claim 13, further comprising:  
selecting one of the plurality of nodes; and

displaying a list of one or more properties of the selected node in a second window pane of the graphical user interface.

**17.** (Original) The method of claim 16, wherein displaying the list of one or more properties comprises:

displaying one or more key-value pairs in the second window pane of the graphical user interface, each key-value pair having a key to identify a listed property and a corresponding value to specify a current value of the identified property.

**18.** (Original) The method of claim 15, further comprising:

displaying a second window pane having an attribute tab and an operation tab.

**19.** (Original) The method of claim 18, further comprising:

displaying a list of one or more attributes of the monitor managed bean, if the attribute tab is selected.

**20.** (Original) The method of claim 19, wherein at least one of the listed attributes includes a value field specifying a current value of the listed attribute.

**21.** (Original) The method of claim 20, further comprising:

entering a value in the value field to specify a new value for the listed attribute.

**22.** (Original) The method of claim 18, further comprising:

displaying a list of one or more operations of the monitor managed bean, if the operation tab is selected.

**23.** (Original) The method of claim 22, wherein displaying the list of one or more operations of the monitor managed bean further comprises:

displaying an invoke button to selectively invoke one or more of the listed operations of the monitor managed bean.

24. (Currently Amended) A system comprising:

a means for accessing a file in a database, the file having semantics and directives to generate a monitor tree for a **Java monitoring architecture (JMA)** monitoring system compatible with Java management extensions (JMX) to individually monitor a plurality of resources within the network,

where the semantics and directives define a hierarchical architecture of the plurality of resources of a cluster of application servers spanning multiple Java virtual machines (JVMs),

the semantics defining information about the monitor tree, monitor managed beans, and resources to be monitored, and

the directives defining how the semantics are to be implemented to form the monitor tree,

wherein the cluster of application servers includes multiple application server instances and a central services instance that provides communication and synchronization among the multiple application server instances;

a means for generating the monitor tree based, at least in part, on the semantics and the directives of the file, the monitor tree to monitor the plurality of resources, wherein the monitor tree includes a hierarchical grouping of a plurality of nodes, each of the plurality of nodes having

a monitor managed bean and a resource of the plurality of resources associated with the monitor managed bean and

a runtime **managed** bean associated with the resource that **interfaces continuously monitors the resource and sends information about** the resource **with to** the monitor managed bean,

wherein each node provides an individual report of the resource associated with the monitor managed bean of the node, where the monitor tree enables distributed monitoring of the resources without requiring all monitoring data to be reported to a central location **of the JMA**; and

a means for displaying, at least a portion of, the generated monitor tree on a graphical user interface of a visual administrator **via a monitor service that interfaces a visual administrator to managed bean servers of the monitoring system**, wherein the displayed portion of the generated monitor tree includes the plurality of nodes, each of the plurality of

nodes having a monitor managed bean and a resource of the plurality of resources associated with the monitor managed bean, including providing access through the graphical user interface to the monitor beans to access monitoring information of each resource without requiring all monitoring data to be reported to a central location.

25. (Original) The system of claim 24, wherein the means for displaying, at least a portion of the generated monitor tree on the graphical user interface of the visual administrator comprises:

a means for displaying the portion of the generated monitor tree in a first window pane of the graphical user interface.

26. **(Canceled)**

27. **(Currently Amended)** The system of ~~claim 26~~ claim 24, further comprising:

a means for selecting one of the plurality of nodes; and

a means for displaying a list of one or more properties of the selected node in a second window pane of the graphical user interface.

28. (Original) The system of claim 27, wherein the means for displaying the list of one or more properties of the selected node in the second window pane of the graphical user interface comprises:

a means for displaying one or more key-value pairs in the second window pane of the graphical user interface, each key-value pair having a key to identify a listed property and a corresponding value to specify a current value of the identified property.

29. **(Currently Amended)** An article of manufacture comprising:

an electronically accessible storage medium providing having instructions stored thereon that, when executed by an apparatus, cause the apparatus to

access a file in a database, the file having semantics and directives to generate a monitor tree for a Java monitoring architecture (JMA) monitoring system compatible with Java

management extensions (JMX) to individually monitor a plurality of resources within the network,

where the semantics and directives define a hierarchical architecture of the plurality of resources of a cluster of application servers spanning multiple Java virtual machines (JVMs),

the semantics defining information about the monitor tree, monitor managed beans, and resources to be monitored, and

the directives defining how the semantics are to be implemented to form the monitor tree,

wherein the cluster of application servers includes multiple application server instances and a central services instance that provides communication and synchronization among the multiple application server instances;

generate the monitor tree based, at least in part, on the semantics and the directives of the file, the monitor tree to monitor the plurality of resources, wherein the monitor tree includes a hierarchical grouping of a plurality of nodes, each of the plurality of nodes having

a monitor managed bean and a resource of the plurality of resources associated with the monitor managed bean and

a runtime managed bean associated with the resource that interfaces continuously monitors the resource and sends information about the resource with to the monitor managed bean,

wherein each node provides an individual report of the resource associated with the monitor managed bean of the node, where the monitor tree enables distributed monitoring of the resources without requiring all monitoring data to be reported to a central location of the JMA; and

display, at least a portion of, the generated monitor tree on a graphical user interface of a visual administrator via a monitor service that interfaces a visual administrator to managed bean servers of the monitoring system, wherein the displayed portion of the generated monitor tree includes the plurality of nodes, each of the plurality of nodes having a monitor managed bean and a resource of the plurality of resources associated with the monitor managed bean, including providing access through the graphical user interface to the monitor beans to access

monitoring information of each resource without requiring all monitoring data to be reported to a central location.

**30.** (Original) The article of manufacture of claim 29, wherein the instructions that, when executed by the apparatus, cause the apparatus to display the portion of the generated monitor tree in a first window pane of the graphical user interface cause the apparatus to

display the portion of the generated monitor tree in a first window pane of the graphical user interface.

**31. (Canceled)**

**32.** (Original) The article of manufacture of claim 30, wherein the electronically accessible medium provides further instructions that, when executed by the apparatus, cause the apparatus to

display a second window pane having an attribute tab and an operation tab; and

display a list of one or more attributes of the monitor managed bean, if the attribute tab is selected.

**33. (New)** The system of claim 1, wherein the visual administrator provides a Swing graphical user interface to the monitoring system.